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Thermal Expansion Coefficient and Phase Transformations in Bi2O3-ZnO-Nb2O5 Pyrochlore System

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Introduction: Precise thermal expansion coefficient measurements of the main phases in the Bi2O3-ZnO-Nb2O5 (BZN) pyrochlore system are required. In addition, the absence of low temperature phase transformations should be confirmed in order to compliment previous work on BZN ceramics.

Methods and Materials: XRD vs. temperature was measured for Bi3/2ZnNb3/2O7 cubic pyrochlore phase and Bi2Zn2/3Nb4/3O7 monoclinic zirconolite-like phase in order to obtain a precise measurement of the thermal expansion coefficient as well as check for possible temperature induced phase transformations. Further work is still needed.